FYI, this page is the Chemical Abstracts Information for the 10/520,541 patent family:

L37 ANSWER 1 OF 1 **HCAPLUS COPYRIGHT ACS on STN**
AN 2004:41373 HCAPLUS
DN 140:80289
ED Entered STN: 18 Jan 2004
TI Steel hollow-head screws
IN **Virgl, Alain; Leroux, Maxime**
PA **Valmex, Fr.**

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004004944	A2	20040115	WO 2003-FR2068	20030703
	WO 2004004944	A3	20040415	- *WO/PCT Search Report*	
	CA 2491598	AA	20040115	CA 2003-2491598	20030703
	AU 2003264688	A1	20040123	AU 2003-264688	20030703
	BR 2003012465	A	20050426	BR 2003-12465	20030703
	CN 1665617	A	20050907	CN 2003-815979	20030703
	JP 2006515403	T2	20060525	JP 2004-518868	20030703
PRAI	FR 2002-8443	A	20020705		
	WO 2003-FR2068	W	20030703		

AB The invention relates to hollow-head screws which are made by simple successive cold working operations by using a steel containing 0.15-0.25% C. The screws are suitable for tightening of automobile wheels.

IT Wheels
(automotive; steel hollow-head screws for)
IT Screws
(steel hollow-head screws for automobile wheels)
IT **642093-26-3**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(for hollow-head screws for automobile wheels)
IT **642093-26-3**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(for hollow-head screws for automobile wheels)
RN 642093-26-3 HCAPLUS
CN Steel, Fe 97-98,Mn 1-1.3,Si 0.3-0.4,C 0.2,Cr 0.1-0.2,Cu 0-0.2,Ni 0-0.2,Al 0-0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	97 - 98	7439-89-6
Mn	1 - 1.3	7439-96-5
Si	0.3 - 0.4	7440-21-3
C	0.2	7440-44-0
Cr	0.1 - 0.2	7440-47-3
Cu	0 - 0.2	7440-50-8
Ni	0 - 0.2	7440-02-0
Al	0 - 0.1	7429-90-5

L59 ANSWER 1 OF 14 HCAPLUS COPYRIGHT ACS on STN

AN 2006:343097 HCAPLUS

DN 144:395337

TI High-**strength** thin steel plate excellent in elongation and bore expanding characteristics and method for production thereof

IN Nonaka, Toshiki; Taniguchi, Hirokazu; Goto, Koichi

PA Nippon Steel Corporation, Japan

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2006038708	A1	20060413	WO 2005-JP18724	20051005
	JP 2006104532	A2	20060420	JP 2004-293990	20041006
PRAI	JP 2004-293990	A	20041006		

AB A high **strength** thin steel plate is characterized in that it has a chemical composition, in mass %, of C 0.03-0.25, Si 0.4-2.0, Mn 0.8-3.1, P ≤ 0.02, S ≤0.02, Al ≤2.0, N ≤ .01% and balance Fe, and a microstructure wherein ferrite is 10-85 area %, retained austenite is 1-10 volume%, tempered martensite is 10-60 area %, and the balance is bainite. The above high **strength** thin steel plate has a tensile **strength** of ≥500 MPa, and also is excellent in elongation and bore expanding characteristics. The steel plate is manufactured by heating slab having the above composition to 1150-1250°, hot rolling at 800-950°, coiling at ≤700°, acid pickling, cold rolling at 30-80% draft, recrystn. annealing at 600° to Ac3+50°, cooling to 600° ~Ar3 at average cooling rate of 30°/s, cooling to ≤400° at average cooling rate of 10-150°/s, keeping at 150-400°' for 1-20 min, and cooling.

IT **882561-96-8**

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(manufacture of high-**strength** thin steel plate excellent in elongation and bore expanding characteristics by rolling, annealing and cooling)

RN 882561-96-8 HCAPLUS

CN Iron alloy, base, Fe 87-99,Mn 0.8-3.1,Si 0.4-2,Al 0-2,Cr 0-2,Mo 0-1,Nb 0-1,Ti 0-1,V 0-1,C 0-0.2,B 0-0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	87 - 99	7439-89-6
Mn	0.8 - 3.1	7439-96-5
Si	0.4 - 2	7440-21-3
Al	0 - 2	7429-90-5
Cr	0 - 2	7440-47-3
Mo	0 - 1	7439-98-7
Nb	0 - 1	7440-03-1
Ti	0 - 1	7440-32-6
V	0 - 1	7440-62-2
C	0 - 0.2	7440-44-0
B	0 - 0.1	7440-42-8

RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L59 ANSWER 2 OF 14 HCAPLUS COPYRIGHT ACS on STN

AN 2005:474761 HCAPLUS

DN 143:11135

TI Thermomechanical processing in hot rolling of compact **strip** from high-**strength** low-alloy steel ingot cast as a thin slab

IN Tokarz, Christopher A.; Deardo, Anthony J.; Garcia, C. Isaac; Graham, Clinton

PA USA

SO U.S. Pat. Appl. Publ., 15 pp.
CODEN: USXXCO

DT Patent

LA English

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2005115649	A1	20050602	US 2004-708807	20040326
PRAI US 2003-458153P	P	20030327		

AB The high-**strength** low-alloy steel cast as a thin ingot slab is hot rolled with passes above the recrystn. temperature of austenite, and then below the recrystn. temperature The hot-rolling strain and temperature in the initial deformation allows full recrystn., but in the finishing stage there is no recrystn. The process promotes fine and uniform austenite grain size. The result is beneficial for high-**strength strip** of low-alloy steel in permitting accurate ultrasonic testing of welds. The process is suitable for low-alloy steels containing C 0.01-0.20, Mn 0.5-3.0, Si 0-2.0, Al 0-2.0, Cr 0-2.0, Mo 0-1.0, Cu 0-3.0, Ni 0-1.5, P 0-0.5, S 0-0.1, N 0.005-0.03, B 0-0.1, and optionally Nb 0-0.2, Ti 0-0.12, and/or V 0-0.15% by weight The cast ingot slab is nominally 25-100 mm thick.

IT **852534-31-7**
RL: TEM (Technical or engineered material use); USES (Uses)
(ingot slab, hot rolling of; thermomech. hot rolling of high-**strength strip** from low-alloy steel as thin ingot)

RN 852534-31-7 HCAPLUS

CN Iron alloy, base, Fe 84-100,Mn 0.5-3,Cu 0-3,Al 0-2,Cr 0-2,Si 0-2,Ni 0-1.5,Mo 0-1,P 0-0.5,C 0-0.2,Nb 0-0.2,V 0-0.2,B 0-0.1,S 0-0.1,Ti 0-0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	84 - 100	7439-89-6
Mn	0.5 - 3	7439-96-5
Cu	0 - 3	7440-50-8
Al	0 - 2	7429-90-5
Cr	0 - 2	7440-47-3
Si	0 - 2	7440-21-3
Ni	0 - 1.5	7440-02-0
Mo	0 - 1	7439-98-7
P	0 - 0.5	7723-14-0
C	0 - 0.2	7440-44-0
Nb	0 - 0.2	7440-03-1
V	0 - 0.2	7440-62-2
B	0 - 0.1	7440-42-8
S	0 - 0.1	7704-34-9
Ti	0 - 0.1	7440-32-6

L59 ANSWER 3 OF 14 HCAPLUS COPYRIGHT ACS on STN

AN 2005:428411 HCAPLUS
DN 142:467009
TI Steel sheet for hot pressing and automobile part showing excellent high-temperature workability
IN Azuma, Masashi
PA Nippon Steel Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 13 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2005126733	A2	20050519	JP 2003-360139	20031021
PRAI JP 2003-360139		20031021		

AB The claimed steel sheet contains C 0.05-0.40, Si ≤2.0, Mn 0.01-4, P ≤0.1, S ≤0.05, Al 0.005-2, N ≤0.01, and Nb and/or Mo (as total) 0.1-3 weight% and has microstructure consisting of ferrite-pearlite or ferrite-cementite-pearlite. Optionally, the steel sheet contains (1) Ti 0.01-3.0, V 0.01-3.0, W 0.01-3.0, (2) Ni 0.005-5, Cu 0.005-5, Cr 0.005-3, (3) B 0.0002-0.1, and/or (4) REM 0.0005-0.01, Y 0.0005-0.01, Ca 0.0005-0.01, Mg 0.0005-0.01 weight%. The claimed automobile part uses the above steel sheet and has ≥60 area% martensite structure. The steel sheet provides high tensile **strength** and is especially suitable for automotive suspensions and reinforcing parts.

IT **851546-55-9**
RL: TEM (Technical or engineered material use); USES (Uses)
(microstructure of steel sheet for hot pressing automobile part with high **strength**)

RN 851546-55-9 HCAPLUS
CN Iron alloy, base, Fe 66-100,Cu 0-5,Ni 0-5,Mn 0-4,Cr 0-3,Mo 0-3,Nb 0-3,Ti 0-3,V 0-3,W 0-3,Al 0-2,Si 0-2,C 0-0.4,B 0-0.1,P 0-0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	66 - 100	7439-89-6
Cu	0 - 5	7440-50-8
Ni	0 - 5	7440-02-0
Mn	0 - 4	7439-96-5
Cr	0 - 3	7440-47-3
Mo	0 - 3	7439-98-7
Nb	0 - 3	7440-03-1
Ti	0 - 3	7440-32-6
V	0 - 3	7440-62-2
W	0 - 3	7440-33-7
Al	0 - 2	7429-90-5
Si	0 - 2	7440-21-3
C	0 - 0.4	7440-44-0
B	0 - 0.1	7440-42-8
P	0 - 0.1	7723-14-0

L59 ANSWER 4 OF 14 HCAPLUS COPYRIGHT ACS on STN

AN 2005:279051 HCAPLUS
DN 142:301477
TI Ductile steel and its production
IN Bertrand Merino, Carlos; Mateos Martin, Pablo
PA Sidenori & D, S.A., Spain
SO Span., 6 pp.
CODEN: SPXXAD
DT Patent
LA Spanish
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI ES 2208047	A1	20040601	ES 2002-63	20020114
ES 2208047	B1	20050616		
PRAI ES 2002-63		20020114		

AB The steel with a martensitic-bainitic microstructure contains C 0.04-0.50, Mn 0.10-2.00, Si ≤1.00, P ≤1.00, S ≤1.00, Cr ≤1.00, Nb ≤1.00, Ti ≤1.00, B ≤1.00, Al ≤1.00, Mo ≤0.30, and V ≤0.25%. Wire are produced by continuous cold rolling. The wires are suitable for manufacture of **screws**.

IT **847790-31-2**
RL: TEM (Technical or engineered material use); USES (Uses)
(ductile martensitic-bainitic steel for production of wires)

RN 847790-31-2 HCAPLUS
CN Iron alloy, base, Fe 89-100,Mn 0.1-2,Al 0-1,B 0-1,Cr 0-1,Nb 0-1,P 0-1,S 0-1,Si 0-1,Ti 0-1,C 0-0.5,Mo 0-0.3,V 0-0.2 (9CI) (CA INDEX NAME)

Component	Component Percent			Component Registry Number
Fe	89	-	100	7439-89-6
Mn	0.1	-	2	7439-96-5
Al	0	-	1	7429-90-5
B	0	-	1	7440-42-8
Cr	0	-	1	7440-47-3
Nb	0	-	1	7440-03-1
P	0	-	1	7723-14-0
S	0	-	1	7704-34-9
Si	0	-	1	7440-21-3
Ti	0	-	1	7440-32-6
C	0	-	0.5	7440-44-0
Mo	0	-	0.3	7439-98-7
V	0	-	0.2	7440-62-2

L59 ANSWER 5 OF 14 HCAPLUS COPYRIGHT ACS on STN

AN 2003:1013082 HCAPLUS
DN 140:45300
TI Ti-microalloyed low-carbon steel for continuous casting of ingot slab for hot-rolled **strip**
IN Edelman, Daniel Geoffrey; Wigman, Steven Leonard
PA Nucor Corporation, USA

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 6669789	B1	20031230	US 2001-945185	20010831
PRAI US 2001-945185		20010831		

AB The Ti-microalloyed steel is manufactured by: (a) desulfurizing and deoxidn. of the molten steel; (b) microalloying with Ti; (c) continuous casting of ingot slab 25-100 mm thick; and (d) hot rolling of **strip** 1.8-13 mm thick followed by quenching, for the ferritic microstructure with ≥20% acicular ferrite. The microalloyed steel contains C 0.01-0.20, Mn 0.5-3.0, Si 0-2.0, N 0.008-0.03, free Ti 0.01-0.12, S 0-0.5, Al 0.005-0.08, Cr 0-1.0, Mo 0-1.0, Cu 0-3.0, Ni 0-1.5, B 0-0.1, and P 0-0.5%. The steel **strip** has nominal tensile yield **strength** of 345-621 MPa (50-90 kpsi) and higher, and elongation ≥15%. The higher yield **strength** is typically promoted by the addition of V and/or Nb. The **strip** manufacture from continuously cast ingot slab includes hot rolling and thermomech. controlled processing with dynamic recrystn. in controlled rolling. The typical microalloyed steel for the **strip** having tensile **strength** of 621-689 MPa, yield point 552-621 MPa, and elongation 15-24% contains C 0.05, Mn 0.90, Al 0.025, free Ti 0.08, N 0.01, and S 0.006%.

IT **636573-63-2**
RL: TEM (Technical or engineered material use); USES (Uses)
(microalloyed; Ti-microalloyed low-C steel for continuous casting of ingot slab for hot-rolled **strip**)

RN 636573-63-2 HCAPLUS
CN Iron alloy, base, Fe 87-100,Mn 0.5-3,Cu 0-3,Si 0-2,Ni 0-1.5,Cr 0-1,Mo 0-1,P 0-0.5,S 0-0.5,C 0-0.2,Al 0-0.1,B 0-0.1,Ti 0-0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	87 - 100	7439-89-6
Mn	0.5 - 3	7439-96-5
Cu	0 - 3	7440-50-8
Si	0 - 2	7440-21-3
Ni	0 - 1.5	7440-02-0
Cr	0 - 1	7440-47-3
Mo	0 - 1	7439-98-7
P	0 - 0.5	7723-14-0
S	0 - 0.5	7704-34-9
C	0 - 0.2	7440-44-0
Al	0 - 0.1	7429-90-5
B	0 - 0.1	7440-42-8
Ti	0 - 0.1	7440-32-6

RE.CNT 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L59 ANSWER 6 OF 14 HCAPLUS COPYRIGHT ACS on STN

AN 2003:837325 HCAPLUS
DN 139:340250
TI Deformed wire for reinforcing land optical fiber cable
IN Ohashi, Shoichi; Demachi, Hitoshi; Murao, Masatsugu; Honda, Michiyasu
PA Nippon Steel Corporation, Japan; Namitei Co., Ltd.; OCC Corporation

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003087419	A1	20031023	WO 2003-JP216	20030114
	JP 2003301240	A2	20031024	JP 2002-110807	20020412
	EP 1498505	A1	20050119	EP 2003-701075	20030114
	CN 1646716	A	20050727	CN 2003-808247	20030114
	US 2006154101	A1	20060713	US 2006-511589	20060126
PRAI	JP 2002-110807	A	20020412		
	WO 2003-JP216	W	20030114		

AB A deformed wire for reinforcing a land optical fiber cable used for the pressure-proof layer of the ground optical fiber cable and having a high **strength** of ≥1800 MPa in tensile **strength**, characterized in that, by mass %, the requirement of $0.80 \leq Ceq \leq 1.80\%$ is satisfied where C is 0.65-1.1% and Ceq = C + 1/4 Si + 1/5 Mn + 4/13 Cr, the number of shearing bands crossing the center axis of L-section is ≤20 pieces/mm per unit length of the center axis, an angle formed by the center axis and the shearing bands is within the range of 10-90°, the tensile **strength** is ≥1800 MPa, the cross section is formed generally in a sector shape, a plurality of the generally sector shapes are combined with each other to form a circular **hollow** cross section for storing optical fibers, the surface is formed in an irregular satin-finished surface with a depth of 0.2 to 5 μm, and welding parts are provided at least at one position in longitudinal direction.

IT **615584-33-3**
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(deformed wire for reinforcing land optical fiber cable)

RN 615584-33-3 HCAPLUS
CN Iron alloy, base, Fe 94-99,Mn 0.2-1.5,Si 0.2-1.5,Cr 0-1.2,C 0.6-1.1,Nb 0-0.3,Al 0-0.1,B 0-0.1,Mo 0-0.1,Ti 0-0.1,V 0-0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	94 - 99	7439-89-6
Mn	0.2 - 1.5	7439-96-5
Si	0.2 - 1.5	7440-21-3
Cr	0 - 1.2	7440-47-3
C	0.6 - 1.1	7440-44-0
Nb	0 - 0.3	7440-03-1
Al	0 - 0.1	7429-90-5
B	0 - 0.1	7440-42-8
Mo	0 - 0.1	7439-98-7
Ti	0 - 0.1	7440-32-6
V	0 - 0.1	7440-62-2

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L59 ANSWER 7 OF 14 HCAPLUS COPYRIGHT ACS on STN

AN 2003:837324 HCAPLUS
DN 139:340249
TI Deformed wire for reinforcing land optical fiber cable
IN Ohashi, Shoichi; Murao, Masatsugu; Honda, Michiyasu
PA Nippon Steel Corporation, Japan; Namitei Co., Ltd.
SO PCT Int. Appl., 30 pp.
CODEN: PIXXD2
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2003087418	A1	20031023	WO 2003-JP215	20030114
W: CN, US				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR				
JP 2003301239	A2	20031024	JP 2002-110657	20020412
CN 1646715	A	20050727	CN 2003-808246	20030114
PRAI JP 2002-110657	A	20020412		

AB A generally sectorial deformed wire for reinforcing a **strong** land optical fiber cable is produced from a wire for a long high-tensile steel wire excellent in cold workability. The deformed wire is characterized in that it contains C 0.40-1.1, Si 0.15-1.5, Mn 0.20-1.5, and 0.0005 to 0.5% in total of one or more of elements of Cr, Mo, V, Al, Ti, Nb, and/or B 0.0005-0.5%, and the C equivalent [Ceq = C+0.25Si+1/5Mn+4/13Cr] satisfies the relations 0.80%≤Ceq≤1.80%, the deformed wire has a ferrite-pearlite structure or a pearlite structure and a tensile **strength** of ≥1800 MPa, the cross section of the deformed wire is generally sectorial, such deformed wires are combined to form a cable having a circular **hollow** section and a **hollow** in which an optical fiber is accommodated.

IT **615584-33-3**
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(deformed wire for reinforcing land optical fiber cable)

RN 615584-33-3 HCAPLUS
CN Iron alloy, base, Fe 94-99,Mn 0.2-1.5,Si 0.2-1.5,Cr 0-1.2,C 0.6-1.1,Nb 0-0.3,Al 0-0.1,B 0-0.1,Mo 0-0.1,Ti 0-0.1,V 0-0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	94 - 99	7439-89-6
Mn	0.2 - 1.5	7439-96-5
Si	0.2 - 1.5	7440-21-3
Cr	0 - 1.2	7440-47-3
C	0.6 - 1.1	7440-44-0
Nb	0 - 0.3	7440-03-1
Al	0 - 0.1	7429-90-5
B	0 - 0.1	7440-42-8
Mo	0 - 0.1	7439-98-7
Ti	0 - 0.1	7440-32-6
V	0 - 0.1	7440-62-2

L59 ANSWER 8 OF 14 HCAPLUS COPYRIGHT ACS on STN

AN 2003:271938 HCAPLUS

DN 138:274576

TI High-**strength** hot-rolled steel sheet and its manufacture for bending workability

IN Nakata, Hiroshi; Inoue, Tadashi; Kikuchi, Hiroyasu; Konda, Sadanori

PA NKK Corp., Japan

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003105446	A2	20030409	JP 2001-294016	20010926
PRAI	JP 2001-294016		20010926		

AB The claimed sheet is manufactured by casting a steel containing C 0.06-0.25, Si ≤2, Mn 0.5-2.5, and soluble Al ≤0.1 weight%, hot rolling directly or after reheating, finish hot rolling at final temperature ≥Ar3 point, cooling within 2 min after rolling at cooling rate ≥150°/s, and then stop cooling at ≤350°. Optionally, the steel sheet contains 0.01-0.2 weight% (as total) Ti, Nb, V, and/or Zr. The steel sheet may contain Cr ≤1, Mo ≤1, and/or B ≤0.1 weight%.

IT **503589-23-9**

RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)

(rolling and cooling in manufacture of high-**strength** hot-rolled steel sheet for bending workability)

RN 503589-23-9 HCAPLUS

CN Iron alloy, base, Fe 93-100,Mn 0-2.5,Si 0-2,Cr 0-1,Mo 0-1,C 0.1-0.2,Nb 0-0.2,Ti 0-0.2,V 0-0.2,Zr 0-0.2,Al 0-0.1,B 0-0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	93 - 100	7439-89-6
Mn	0 - 2.5	7439-96-5
Si	0 - 2	7440-21-3
Cr	0 - 1	7440-47-3
Mo	0 - 1	7439-98-7
C	0.1 - 0.2	7440-44-0
Nb	0 - 0.2	7440-03-1
Ti	0 - 0.2	7440-32-6
V	0 - 0.2	7440-62-2
Zr	0 - 0.2	7440-67-7
Al	0 - 0.1	7429-90-5
B	0 - 0.1	7440-42-8

L59 ANSWER 9 OF 14 HCAPLUS COPYRIGHT ACS on STN

AN 2002:573333 HCAPLUS

DN 137:128054

TI Microalloyed steel electrodes cored with Mn-containing powder mixtures for electric-arc welding with decreased fume generation

IN North, Thomas H.; Mott, Lowell W.

PA Illinois Tool Works Inc., USA; University of Toronto

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1226897	A2	20020731	EP 2002-250407	20020121
	EP 1226897	A3	20031126		
	US 2002153364	A1	20021024	US 2001-772708	20010130
	US 6784401	B2	20040831		
	CA 2366261	AA	20020730	CA 2001-2366261	20011228
	CN 1368419	A	20020911	CN 2002-102444	20020122
	JP 2002301592	A2	20021015	JP 2002-21979	20020130
	US 2004232131	A1	20041125	US 2004-885382	20040706
	US 7091448	B2	20060815		
PRAI	US 2001-772708	A	20010130		

AB The cored electrode for elec.-arc welding is manufactured from microalloyed or alloy steel, and has a core filled with precoated or composite Mn particles for decreased Mn-fume generation. The microalloyed steel typically contains C 0-0.12, Mn 0.5-3.0, Si 0-2.0, Ti 0.05-0.7, B 0-0.1, Cr 0-0.4, Ni 0-0.5, Mo 0-0.1, V 0-0.5, Al 0-0.5, Cu 0-0.1, and Mg 0-0.5%. The alloy steel typically contains C 0-0.13, Mn 0.5-3.75, Si 0-2.0, Ti 0.05-0.7, B 0-0.1, Cr 0-10.5, Ni 0-3.75, Mo 0-1.2, V 0-0.25, Al 0-0.5, Cu 0-0.75, and Mg 0-0.5%. The electrode core is preferably based on the Mn powder precoated with (or mixed with) TiO2 powder, for the low-Mn fume generation in elec.-arc welding of steel with the arc shielding by Ar or Ar-CO2 gas. The typical core-filler mixture contains powdered Mn 4.7, ferrosilicomanganese 33.4, TiO2 (as rutile) 56.7, and water glass binder 5 weight parts, and is suitable for the flux core in steel wire drawn from tubular-**strip** preform.

IT **444189-92-8 444189-93-9**

(electrodes, for welding of steel; microalloyed steel electrodes cored with Mn-containing powder mixts. for elec.-arc welding with decreased fume generation)

RN 444189-92-8 HCAPLUS

CN Iron alloy, base, Fe 91-99,Mn 0.5-3,Si 0-2,Ti 0-0.7,Al 0-0.5,Mg 0-0.5,Ni 0-0.5,V 0-0.5,Cr 0-0.4,B 0-0.1,C 0-0.1,Cu 0-0.1,Mo 0-0.1

Component	Component Percent			Component Registry Number
Fe	91	-	99	7439-89-6
Mn	0.5	-	3	7439-96-5
Si	0	-	2	7440-21-3
Ti	0	-	0.7	7440-32-6
Al	0	-	0.5	7429-90-5
Mg	0	-	0.5	7439-95-4
Ni	0	-	0.5	7440-02-0
V	0	-	0.5	7440-62-2
Cr	0	-	0.4	7440-47-3
B	0	-	0.1	7440-42-8
C	0	-	0.1	7440-44-0
Cu	0	-	0.1	7440-50-8
Mo	0	-	0.1	7439-98-7

RN 444189-93-9 HCAPLUS
CN Iron alloy, base, Fe 76-99,Cr 0-10,Mn 0.5-3.8,Ni 0-3.8,Si 0-2,Mo 0-1.2,Cu 0-0.8,Ti 0-0.7,Al 0-0.5,Mg 0-0.5,V 0-0.2,B 0-0.1,C 0-0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	76 - 99	7439-89-6
Cr	0 - 10	7440-47-3
Mn	0.5 - 3.8	7439-96-5
Ni	0 - 3.8	7440-02-0
Si	0 - 2	7440-21-3
Mo	0 - 1.2	7439-98-7
Cu	0 - 0.8	7440-50-8
Ti	0 - 0.7	7440-32-6
Al	0 - 0.5	7429-90-5
Mg	0 - 0.5	7439-95-4
V	0 - 0.2	7440-62-2
B	0 - 0.1	7440-42-8
C	0 - 0.1	7440-44-0

L59 ANSWER 10 OF 14 HCAPLUS COPYRIGHT ACS on STN

AN 2001:472991 HCAPLUS

DN 135:35678

TI Direct patenting high-**strength** wire rod and method for producing the same

IN Nishida, Seiki; Yoshie, Atsuhiko; Hikita, Naoshi; Sahara, Susumu; Saito, Hitoshi; Yoshimura, Koji

PA Nippon Steel Corporation, Japan

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001046485	A1	20010628	WO 2000-JP9167	20001222
	JP 2001181790	A2	20010703	JP 1999-365276	19991222
	JP 2001181793	A2	20010703	JP 1999-371312	19991227
	CN 1117171	B	20030806	CN 2000-804128	20001222
PRAI	JP 1999-365276	A	19991222		
	JP 1999-371312	A	19991227		

AB The title wire rod is manufactured from high-C steel containing C 0.7-1.2, Si 0.1-1.5, Mn 0.1-1.0, and optionally Cr 0.1-0.5, V 0.001-0.2, Ni 0.05-1.0, Mo 0.1-0.5, Cu 0.05-0.8, W 0.05-0.8, La 0.0005-0.01, Ce 0.0005-0.01, Al 0.001-0.06, B 0.0005-0.06, Ti 0.001-0.06, Nb 0.001-0.06%, by heating at 1000-1200°, hot rolling to a diameter of 4.0-16 mm, patenting at 400-570°, and drawing to obtain a wire having a **hard** surface layer thickness ≥300 μm and **Vickers hardness** (Hv) of ≤390. The average C content in surface layer of the wire rod is ≤0.97 times that of the whole cross section of the wire rod, and the average lamella gap between two interlayers is preferably ≥95 nm. The wire rods contain controlled amts. of fine inclusions and provide wires with uniform martensite grain sizes by patenting after wire drawing.

IT **344361-23-5**
(direct patenting high-**strength** wire rod and method for producing the same)

RN 344361-23-5 HCAPLUS

CN Iron alloy, base, Fe 92-99,Si 0.1-1.5,C 0.7-1.2,Mn 0.1-1,Ni 0-1,Cu 0-0.8,W 0-0.8,Cr 0.1-0.5,Mo 0.1-0.5,V 0-0.2,Al 0-0.1,B 0-0.1,Nb 0-0.1,Ti 0-0.1

Component	Component Percent			Component Registry Number
Fe	92	-	99	7439-89-6
Si	0.1	-	1.5	7440-21-3
C	0.7	-	1.2	7440-44-0
Mn	0.1	-	1	7439-96-5
Ni	0	-	1	7440-02-0
Cu	0	-	0.8	7440-50-8
W	0	-	0.8	7440-33-7
Cr	0.1	-	0.5	7440-47-3
Mo	0.1	-	0.5	7439-98-7
V	0	-	0.2	7440-62-2
Al	0	-	0.1	7429-90-5
B	0	-	0.1	7440-42-8
Nb	0	-	0.1	7440-03-1
Ti	0	-	0.1	7440-32-6

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L59 ANSWER 11 OF 14 HCAPLUS COPYRIGHT ACS on STN

AN 2000:34644 HCAPLUS
DN 132:96225
TI Coated hot-rolled and cold-rolled steel sheet with high **strength** and corrosion resistance after heat treatment
IN Laurent, Jean-Pierre; Devroc, Jacques; Hennechart, Jean-Paul; Spehner, Dominique; Laminage, Lorraine
PA Sollac, Fr.
SO Eur. Pat. Appl., 7 pp.
CODEN: EPXXDW
DT Patent
LA French
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 971044	A1	20000112	EP 1999-401690	19990707
	EP 971044	B1	20030514		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	FR 2780984	A1	20000114	FR 1998-8793	19980709
	FR 2780984	B1	20010622		
	CA 2276911	AA	20000109	CA 1999-2276911	19990707
	AT 240419	E	20030515	AT 1999-401690	19990707
	PT 971044	T	20030829	PT 1999-401690	19990707
	ES 2196740	T3	20031216	ES 1999-401690	19990707
	BR 9902712	A	20000308	BR 1999-2712	19990708
	JP 2000038640	A2	20000208	JP 1999-195664	19990709
	US 6296805	B1	20011002	US 1999-350100	19990709
PRAI	FR 1998-8793	A	19980709		

AB A hot-rolled and cold-rolled steel sheet containing C 0.15-0.5, Mn 0.5-3, Si 0.1-0.5, Cr 0.01-1, Ti ≤0.2, Al ≤0.1, P ≤0.1, S ≤0.05, and B 0.0005-0.08% is coated in a molten Al bath, heated at 5-600°/s, and annealed above 750°. The coated sheet has a high **strength**, shock-, fatigue-, abrasion-, wear-, and corrosion resistance, and adhesion to paints and adhesives.

IT **254455-64-6**
RL: TEM (Technical or engineered material use); USES (Uses)
(aluminum-coated hot-rolled and cold-rolled steel sheet with high **strength** and corrosion resistance)

RN 254455-64-6 HCAPLUS
CN Iron alloy, base, Fe 95-99,Mn 0.5-3,Cr 0-1,C 0.2-0.5,Si 0.1-0.5,Ti 0-0.2,Al 0-0.1,B 0-0.1,P 0-0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	95 - 99	7439-89-6
Mn	0.5 - 3	7439-96-5
Cr	0 - 1	7440-47-3
C	0.2 - 0.5	7440-44-0
Si	0.1 - 0.5	7440-21-3
Ti	0 - 0.2	7440-32-6
Al	0 - 0.1	7429-90-5
B	0 - 0.1	7440-42-8
P	0 - 0.1	7723-14-0

L59 ANSWER 12 OF 14 HCAPLUS COPYRIGHT ACS on STN

AN 1993:107310 HCAPLUS
DN 118:107310
TI Manufacture of high-**strength** wire from low-alloy steels
IN Ochiai, Yukio; Oba, Hiroshi
PA Nippon Steel Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 10 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 04289127	A2	19921014	JP 1991-2756	19910114
PRAI JP 1991-2756		19910114		

AB The wire rods are manufactured by hot rolling of the steels containing C 0.90-1.25, Si 0.15-1.5, Mn 0.3-1.0, Ni 0.1-0.5%, and optionally Cr 0.1-1.0 and/or V 0.02-0.30 with Al, Ti, Nb, Zr, and/or B ≤0.1%. The hot-rolled rods are finished by isothermal transformation in baths at 400-650°, and then cooled. The rods show high ductility suitable for drawing of high- **strength** wires for galvanizing and cables (especially for suspension bridges).

IT **146179-36-4**
RL: USES (Uses)
(wires, rod manufacture for drawing of, with hot rolling and isothermal transformation for **strength** and ductility)

RN 146179-36-4 HCAPLUS
CN Iron alloy, base, Fe 94-98,Si 0.2-1.5,C 0.9-1.2,Mn 0.3-1,Cr 0.1-1,Ni 0.1-0.5,V 0-0.3,Al 0-0.1,B 0-0.1,Nb 0-0.1,Ti 0-0.1,Zr 0-0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	94 - 98	7439-89-6
Si	0.2 - 1.5	7440-21-3
C	0.9 - 1.2	7440-44-0
Mn	0.3 - 1	7439-96-5
Cr	0.1 - 1	7440-47-3
Ni	0.1 - 0.5	7440-02-0
V	0 - 0.3	7440-62-2
Al	0 - 0.1	7429-90-5
B	0 - 0.1	7440-42-8
Nb	0 - 0.1	7440-03-1
Ti	0 - 0.1	7440-32-6
Zr	0 - 0.1	7440-67-7

L59 ANSWER 13 OF 14 HCAPLUS COPYRIGHT ACS on STN

AN 1992:198545 HCAPLUS
DN 116:198545
TI Manufacture of steel **strip** by continuous casting and heat treatment
IN Akamatsu, Satoshi; Senuma, Takehide; Kawasaki, Kaoru
PA Nippon Steel Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 03274231	A2	19911205	JP 1990-146172	19900606
PRAI JP 1990-26749	A1	19900206		

AB The continuously cast **strip** is manufactured from molten steels containing C 0.01-0.2, Si ≤3.0, Mn 0.5-3.0, P ≤0.10, S 0.003-0.05, Al 0.01-0.1, and optionally Nb, Ti, V, Ni, Cr, Mo, and/or B ≤1.0%. The **strip** is hot worked ≤80% (total draft) at austenitic temperature for transformation to ferrite, reheated to the austenitic structure, and cooled to obtain fine-grained ferritic structure having low anisotropy. The steel plates have homogeneous structure and excellent **strength**, ductility, toughness, and fatigue characteristics.

IT **140664-36-4**
RL: MSC (Miscellaneous)
(continuously cast, thermomech. treatment of, for fine-grained ferritic structure)

RN 140664-36-4 HCAPLUS
CN Iron alloy, base, Fe 93-100,Mn 0.5-3,Si 0-3,B 0-1,Cr 0-1,Mo 0-1,Nb 0-1,Ni 0-1,Ti 0-1,V 0-1,C 0-0.2,Al 0-0.1,P 0-0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	93 - 100	7439-89-6
Mn	0.5 - 3	7439-96-5
Si	0 - 3	7440-21-3
B	0 - 1	7440-42-8
Cr	0 - 1	7440-47-3
Mo	0 - 1	7439-98-7
Nb	0 - 1	7440-03-1
Ni	0 - 1	7440-02-0
Ti	0 - 1	7440-32-6
V	0 - 1	7440-62-2
C	0 - 0.2	7440-44-0
Al	0 - 0.1	7429-90-5
P	0 - 0.1	7723-14-0

L59 ANSWER 14 OF 14 HCAPLUS COPYRIGHT ACS on STN

AN 1983:202384 HCAPLUS

DN 98:202384

TI Nonmetallic inclusions in graphitized steel

AU Skoblo, T. S.; Rudyuk, S. I.; Malashenko, L. A.; Spirina, S. V.; Savon, A. I.

CS Ukr. NIImet, USSR

SO Stal' (1983), (2), 67-9
CODEN: STALAQ; ISSN: 0038-920X

DT Journal

LA Russian

AB Graphitized steel [**85766-22-9**] containing C 0.93-1.68, Mn 0.34-0.77, Si 0.92-2.5, S 0.002-0.029, P 0.013-0.04, Cr 0.05-0.88, Ni 0-1.47, Ti 0.04-0.12, Mo 0-0.51, Ca 0-0.0003, Ce 0-0.18, and Al or B 0-0.15% was used for roll casting. Correlations between composition and structure, and between inclusions and mech. properties were obtained. Ce and Ca increased, and sulfide-forming Mn and S decreased the tendency to graphitization. Pearlitic steels containing ≤0.5% cementite and graphite, and without or with globular sulfides had high **strength** (810-910 MPa). Ductility increased (2% elongation) by inoculation and limiting Ti amount

IT **85766-22-9**
RL: USES (Uses)
(mech. properties of graphitized cast, by inclusions, composition effect on)

RN 85766-22-9 HCAPLUS

CN Iron alloy, base, Fe 91-98,Si 0.9-2.5,C 0.9-1.7,Ni 0-1.5,Cr 0.1-0.9,Mn 0.3-0.8,Mo 0-0.5,Al 0-0.2,B 0-0.2,Ce 0-0.2,Ti 0-0.1 (9CI) (CA INDEX NAME)

Component	Component Percent			Component Registry Number
Fe	91	-	98	7439-89-6
Si	0.9	-	2.5	7440-21-3
C	0.9	-	1.7	7440-44-0
Ni	0	-	1.5	7440-02-0
Cr	0.1	-	0.9	7440-47-3
Mn	0.3	-	0.8	7439-96-5
Mo	0	-	0.5	7439-98-7
Al	0	-	0.2	7429-90-5
B	0	-	0.2	7440-42-8
Ce	0	-	0.2	7440-45-1
Ti	0	-	0.1	7440-32-6

L60 ANSWER 1 OF 9 HCAPLUS COPYRIGHT ACS on STN

AN 2006:322586 HCAPLUS
DN 144:354988
TI Oxidation-resistant units and oxidation-resistant coating materials for turbines
IN Yasutomi, Yoshiyuki; Kitaoka, Satoshi; Matsudaira, Tsuneaki; Kawashima, Naoki; Wada, Masashi; Sugita, Yuji; Kagitani, Yukio; Nakajo, Koji
PA Fine Ceramics Center, Japan; Chubu Electric Power Co., Inc.

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2006089796	A2	20060406	JP 2004-275373	20040922

PRAI JP 2004-275373 20040922

AB The title unit is equipped with a structure body containing an electron conducting region (R1) placed at oxidizing atmospheric side and an oxide layer placed at the oxidizing atmospheric side of R1, and a means for collecting neg. charge to R1. The region R1 may contain electron-conducting materials chosen from Ti, Ta, W, Ir, Pt-type alloys, heat-resistant steel containing C 0-1, Si 0-3, Mn 0-2, Cr 0-30, Ni 0-50, Mo 0-10, W 0-8, Nb 0-5, Ti 0-5, Al 0-2, B 0-0.2, N 0-0.2, V 0-1, Cu 0-5, Zr 0-0.3 weight%, Fe-based superalloys, Fe-Ni-Co-Cr alloys containing C 0-0.5, Si 0-2, Mn 0-5, Cr 0-30, Ni 0-50, Co 0-50, Mo 0-10, W 0-8, Nb 0-5, Ti 0-5, Al 0-1, B 0-0.1, N 0-0.2, V 0-5, and Cu 0-5 weight%, Co-based superalloys containing C 0-1, Si 0-2, Mn 0-2, Ni 0-30, Cr 0-30, Mo 0-8, W 0-20, Nb 0-5, Ta 0-10, Ti 0-5, Al 0-0.5, Fe 0-5, B 0-0.5, Zr 0-2 weight%, MCrAlR alloys (M = Ni, Co, and/or Fe; R = rare earth metals), TiC, TiN, TaC, TaN, LaCrO3, and LaCoO3. The unit provides high oxidation resistance by ion blocking effects and elec. repulsion.

IT **881036-95-9 881036-96-0**
RL: DEV (Device component use); USES (Uses)
(substrate; oxidation-resistant units and coating materials having oxide surface for turbines)

RN 881036-95-9 HCAPLUS
CN Iron alloy, base, Fe 0-100,Ni 0-50,Cr 0-30,Mo 0-10,W 0-8,Cu 0-5,Nb 0-5,Ti 0-5,Si 0-3,Al 0-2,Mn 0-2,C 0-1,V 0-1,Zr 0-0.3,B 0-0.2,N 0-0.2

Component	Component Percent	Component Registry Number
Fe	0 - 100	7439-89-6
Ni	0 - 50	7440-02-0
Cr	0 - 30	7440-47-3
Mo	0 - 10	7439-98-7
W	0 - 8	7440-33-7
Cu	0 - 5	7440-50-8
Nb	0 - 5	7440-03-1
Ti	0 - 5	7440-32-6
Si	0 - 3	7440-21-3
Al	0 - 2	7429-90-5
Mn	0 - 2	7439-96-5
C	0 - 1	7440-44-0
V	0 - 1	7440-62-2
Zr	0 - 0.3	7440-67-7
B	0 - 0.2	7440-42-8
N	0 - 0.2	17778-88-0

RN 881036-96-0 HCAPLUS
CN Iron alloy, base, Fe 0-100,Co 0-50,Ni 0-50,Cr 0-30,Mo 0-10,W 0-8,Cu 0-5,Mn 0-5,Nb 0-5,Ti 0-5,V 0-5,Si 0-2,Al 0-1,C 0-0.5,N 0-0.2,B 0-0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	0 - 100	7439-89-6
Co	0 - 50	7440-48-4
Ni	0 - 50	7440-02-0
Cr	0 - 30	7440-47-3
Mo	0 - 10	7439-98-7
W	0 - 8	7440-33-7
Cu	0 - 5	7440-50-8
Mn	0 - 5	7439-96-5
Nb	0 - 5	7440-03-1
Ti	0 - 5	7440-32-6
V	0 - 5	7440-62-2
Si	0 - 2	7440-21-3
Al	0 - 1	7429-90-5
C	0 - 0.5	7440-44-0
N	0 - 0.2	17778-88-0
B	0 - 0.1	7440-42-8

L60 ANSWER 2 OF 9 HCAPLUS COPYRIGHT ACS on STN

AN 2006:31898 HCAPLUS
DN 144:132328
TI Annular concentrically twisted bead cord
IN Sasabe, Hiroshi; Wakahara, Hitoshi; Okamoto, Kenichi
PA Sumitomo(Sei) Steel Wire Corp., Japan; Sumitomo Electric Tochigi Co. Ltd.

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2006004054	A1	20060112	WO 2005-JP12227	20050701
	JP 2006062641	A2	20060309	JP 2005-177763	20050617
	JP 3779313	B2	20060524		
PRAI	JP 2004-198329	A	20040705		
	JP 2004-224303	A	20040730		
	JP 2005-177631	A	20050617		
	JP 2005-177763	A	20050617		

AB An annular concentrically twisted bead cord reduced in weight and cost and improved in molding properties and annular core corrosive resistance. The annular core is formed of a medium carbon steel or an alloy steel obtained by suppressing carbon content and adding the proper amts. of specified elements thereto. The diameter (dc) of the annular core to the diameter (ds) of peripheral wires meets the requirement of the expression, $1.04 \leq dc/ds \leq 1.30$, and the peripheral wires with a coil diameter of 0.5 to 1.3 times the coil diameter of the annular core are used to provide the bead cord reduced in weight and cost and improved in molding properties. Also, an Al-Zn alloy plating or a thick Zn plating layer is formed on the surface of the steel wire of the annular core or a stainless steel is used as the material of the annular core to increase the corrosive resistance of the annular core.

IT **873188-74-0**
RL: NUU (Other use, unclassified); USES (Uses)
(annular concentrically twisted bead cord)

RN 873188-74-0 HCAPLUS
CN Iron alloy, base, Fe 93-99,Mn 0.5-2,Si 0.3-2,Cr 0.2-2,C 0.1-0.3,Al 0-0.1,B 0-0.1,Mg 0-0.1,Nb 0-0.1,Ti 0-0.1,V 0-0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	93 - 99	7439-89-6
Mn	0.5 - 2	7439-96-5
Si	0.3 - 2	7440-21-3
Cr	0.2 - 2	7440-47-3
C	0.1 - 0.3	7440-44-0
Al	0 - 0.1	7429-90-5
B	0 - 0.1	7440-42-8
Mg	0 - 0.1	7439-95-4
Nb	0 - 0.1	7440-03-1
Ti	0 - 0.1	7440-32-6
V	0 - 0.1	7440-62-2

RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L60 ANSWER 3 OF 9 HCAPLUS COPYRIGHT ACS on STN

AN 2005:1153052 HCAPLUS
DN 143:425118
TI Steel slab with small number of surface cracks
IN Wakao, Masamitsu
PA Nippon Steel Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005298909	A2	20051027	JP 2004-117474	20040413

PRAI JP 2004-117474 20040413

AB A steel slab with a small number of surface cracks contains C 0.001-1.5, Mn 0.01-3.0, Si 0.005-4.0, S 0.001-0.05, N 0.0020-0.02, O 0.0005-0.0050, Al 0.006-0.1, ≥1 form Nb 0.04-0.1, Ti 0.004-0.1, and V 0.01-0.1 and optionally ≥1 of Ni, Cu, Cr, Mo, B, Zr, Mg, Ca at ≤1.0. The steel also contains P 0.05-0.5 and Ce and/or La 0.005-0.5%. The average value of γ grain diameter in a 5-35 mm range from the slab surface is ≤3 mm.

IT **868054-58-4**
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(steel slab with small number of surface cracks)

RN 868054-58-4 HCAPLUS
CN Iron alloy, base, Fe 90-100,Si 0-4,Mn 0-3,C 0-1.5,B 0-1,Ca 0-1,Cr 0-1,Cu 0-1,Mg 0-1,Mo 0-1,Ni 0-1,Zr 0-1,Ce 0-0.5,La 0-0.5,P 0-0.5,Al 0-0.1,Nb 0-0.1,Ti 0-0.1,V 0-0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	90 - 100	7439-89-6
Si	0 - 4	7440-21-3
Mn	0 - 3	7439-96-5
C	0 - 1.5	7440-44-0
B	0 - 1	7440-42-8
Ca	0 - 1	7440-70-2
Cr	0 - 1	7440-47-3
Cu	0 - 1	7440-50-8
Mg	0 - 1	7439-95-4
Mo	0 - 1	7439-98-7
Ni	0 - 1	7440-02-0
Zr	0 - 1	7440-67-7
Ce	0 - 0.5	7440-45-1
La	0 - 0.5	7439-91-0
P	0 - 0.5	7723-14-0
Al	0 - 0.1	7429-90-5
Nb	0 - 0.1	7440-03-1
Ti	0 - 0.1	7440-32-6
V	0 - 0.1	7440-62-2

L60 ANSWER 4 OF 9 HCAPLUS COPYRIGHT ACS on STN

AN 2005:1129400 HCAPLUS
DN 143:408757
TI High-abrasion resistant, low-thermal expansion roll and composite roll for hot rolling
IN Morikawa, Takashi; Tsujimoto, Yutaka
PA Kubota Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 10 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2005290533	A2	20051020	JP 2004-111783	20040406
PRAI JP 2004-111783		20040406		

AB Roll having high abrasion resistance, high cracking resistance and low thermal expansion contains C 3.1-3.7, Si 0.3-1.0, Mn 0.1-1.5, Ni 2.5-5.0, Cr 1.0-2.5, Mo 0.1-1.0, Al 0.01-0.2, N 0.005-0.05, Ti, Nb, and/or V 0.2-2.5% and balance of Fe, wherein V <1.5, Nb ≤2.5, and Ti ≤0.5%, and it satisfies the relation 2.9% ≤ C-(0.24V+0.13Nb+0.25Ti) +0.33Si+0.52Al+0.86N≤4.0%. The composite roll comprises an outer layer from the above roll material and an inner roll from gray cast iron, ductile cast iron, graphite steel or cast steel containing ≤2.0% C.

IT **867066-34-0**
RL: TEM (Technical or engineered material use); USES (Uses)
(interlayer in composite roll; high-abrasion resistant, low-thermal expansion roll and composite roll for hot rolling)

RN 867066-34-0 HCAPLUS
CN Iron alloy, base, Fe 86-98,C 1-2.5,Cr 0-2.5,Al 0-2,B 0-2,Mo 0-2,Nb 0-2,Ti 0-2,V 0-2,Si 0.5-1.5,Mn 0.2-1.5,Ni 0-1.5 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	86 - 98	7439-89-6
C	1 - 2.5	7440-44-0
Cr	0 - 2.5	7440-47-3
Al	0 - 2	7429-90-5
B	0 - 2	7440-42-8
Mo	0 - 2	7439-98-7
Nb	0 - 2	7440-03-1
Ti	0 - 2	7440-32-6
V	0 - 2	7440-62-2
Si	0.5 - 1.5	7440-21-3
Mn	0.2 - 1.5	7439-96-5
Ni	0 - 1.5	7440-02-0

L60 ANSWER 5 OF 9 HCAPLUS COPYRIGHT ACS on STN

AN 2004:584815 HCAPLUS
DN 141:109480
TI High-toughness steel tool and its manufacture by heat treatment
IN Kuramoto, Hiroshi; Ibaraki, Nobuhiko
PA Kobe Steel, Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 13 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2004204312	A2	20040722	JP 2002-376011	20021226
PRAI JP 2002-376011		20021226		

AB The title tool is manufactured from a steel material containing C 0.40-0.85, Si >0 and ≤2.0, Mn >0 and ≤2.0, Cr >0 and ≤3.0, Al >0 and ≤0.1, and N 0.007-0.015 weight% by heating to austenite temperature, cooling to Ar3 point-(Ar3 point+ 50°), and then quenching. The resulting tool has refined grains and is prevented from damage.

IT **721446-99-7**
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(high-toughness steel tool manufactured by heat treatment)

RN 721446-99-7 HCAPLUS
CN Iron alloy, base, Fe 84-100,Cr 0-3,Cu 0-2,Mn 0-2,Mo 0-2,Ni 0-2,Si 0-2,V 0-2,C 0.4-0.8,Nb 0-0.3,Al 0-0.1,B 0-0.1,Ti 0-0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	84 - 100	7439-89-6
Cr	0 - 3	7440-47-3
Cu	0 - 2	7440-50-8
Mn	0 - 2	7439-96-5
Mo	0 - 2	7439-98-7
Ni	0 - 2	7440-02-0
Si	0 - 2	7440-21-3
V	0 - 2	7440-62-2
C	0.4 - 0.8	7440-44-0
Nb	0 - 0.3	7440-03-1
Al	0 - 0.1	7429-90-5
B	0 - 0.1	7440-42-8
Ti	0 - 0.1	7440-32-6

L60 ANSWER 6 OF 9 HCAPLUS COPYRIGHT ACS on STN

AN 2002:423064 HCAPLUS
DN 137:9096
TI Adamite rolls with high wear and surface roughening resistance for hot rolling of steels
IN Tokunaga, Yukihiro; Kamimiyata, Kazunori; Takikawa, Hiroshi
PA Nippon Steel Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2002161334	A2	20020604	JP 2000-353708	20001121
PRAI JP 2000-353708		20001121		

AB In the adamite roll, the outer material comprises a Fe alloy containing C 1.0-2.5, Si 0.2-2.0, Mn 0.2-2.0, Ni 0.2-3.0, Cr 0.5-4.0, Mo 0.2-2.0, B 0.001-0.50, Al 0.001-0.50, Ti 0.001-0.50, Zr 0.001-0.50, Cu 0.001-0.50, Mg 0.001-0.50, and Ca 0.001-0.50 weight%, optionally with W 0.2-3.0, V 0.2-3.0, Nb 0.2-3.0, and/or Co 0.2-3.0 weight%. Since the Fe alloy has a microstructure containing uniform and fine spherical grains of M3C eutectic carbide, the adamite roll has high wear resistance and surface roughening resistance.

IT **432029-02-2**
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(adamite roll having Fe alloy outer layer with high wear and surface roughening resistance for hot rolling of steel)

RN 432029-02-2 HCAPLUS
CN Iron alloy, base, Fe 81-98,Cr 0.5-4,Ni 0.2-3,C 1-2.5,Mn 0.2-2,Mo 0.2-2,Si 0.2-2,Al 0-0.5,B 0-0.5,Ca 0-0.5,Cu 0-0.5,Mg 0-0.5,Ti 0-0.5,Zr 0-0.5 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	81 - 98	7439-89-6
Cr	0.5 - 4	7440-47-3
Ni	0.2 - 3	7440-02-0
C	1 - 2.5	7440-44-0
Mn	0.2 - 2	7439-96-5
Mo	0.2 - 2	7439-98-7
Si	0.2 - 2	7440-21-3
Al	0 - 0.5	7429-90-5
B	0 - 0.5	7440-42-8
Ca	0 - 0.5	7440-70-2
Cu	0 - 0.5	7440-50-8
Mg	0 - 0.5	7439-95-4
Ti	0 - 0.5	7440-32-6
Zr	0 - 0.5	7440-67-7

L60 ANSWER 9 OF 9 HCAPLUS COPYRIGHT ACS on STN

AN 1984:199862 HCAPLUS

DN 100:199862

TI Iron alloy anode for iron-zinc alloy electroplating

PA Nippon Kokan K. K., Japan

SO Jpn. Kokai Tokkyo Koho, 3 pp.
CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 58199899	A2	19831121	JP 1982-80274	19820514
JP 60024196	B4	19850611		

PRAI JP 1982-80274 19820514

AB A consumable Fe anode for electroplating Fe-Zn alloys on steel is described which contains C < 0.2, Si < 0.3, and S 0.03-0.0005% with the content of this C, Si, and S as well as other components such as Mn, P, Cu, Cr, Al, B, Ti, N, and Mo ≤4%. Sludge formation is decreased and anode passivation is prevented by using this anode in Fe-Zn alloy electroplating.

IT **89612-87-3**
RL: PRP (Properties)
(anode, for electroplating of iron-zinc alloys on steel)

RN 89612-87-3 HCAPLUS

CN Iron alloy, base, Fe 63-100,Al 0-4,B 0-4,Cr 0-4,Cu 0-4,Mn 0-4,Mo 0-4,N 0-4,P 0-4,Si 0-4,Ti 0-4,C 0-0.2 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	63 - 100	7439-89-6
Al	0 - 4	7429-90-5
B	0 - 4	7440-42-8
Cr	0 - 4	7440-47-3
Cu	0 - 4	7440-50-8
Mn	0 - 4	7439-96-5
Mo	0 - 4	7439-98-7
N	0 - 4	17778-88-0
P	0 - 4	7723-14-0
Si	0 - 4	7440-21-3
Ti	0 - 4	7440-32-6
C	0 - 0.2	7440-44-0

L60 ANSWER 7 OF 9 HCAPLUS COPYRIGHT ACS on STN

AN 2001:626082 HCAPLUS
DN 135:169240
TI Steel having superior cutability for cold forging of machinery parts
IN Anami, Goro; Somekawa, Masami; Hasegawa, Toyofumi
PA Kobe Steel, Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2001234279	A2	20010828	JP 2000-44821	20000222
PRAI JP 2000-44821		20000222		

AB The title steel contains C ≤0.7, Mn 0.1-3, Si ≤2.5, Cr ≤1.5, Al ≤0.1, S ≤0.025, N ≤0.025, O ≤0.003, Bi ≤0.2%, and addnl. ≥1 elements of rare earth metals ≤100 ppm, Ca ≤100 ppm, and Mg ≤100 ppm, and has an average oxygen content of ≤10% in Mn sulfide-series inclusions in its microstructure. Optionally, the steel contains ≥1 metals of Cu ≤2, Ni ≤2, Mo ≤1, Ti ≤0.3, V ≤0.5, Nb ≤0.3, and B ≤0.1%.

IT **354143-13-8**
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(steel having superior cutability for cold forging of machinery parts)

RN 354143-13-8 HCAPLUS
CN Iron alloy, base, Fe 86-100,Mn 0.1-3,Si 0-2.5,Cu 0-2,Ni 0-2,Cr 0-1.5,Mo 0-1,C 0-0.7,V 0-0.5,Nb 0-0.3,Ti 0-0.3,Bi 0-0.2,Al 0-0.1,B 0-0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	86 - 100	7439-89-6
Mn	0.1 - 3	7439-96-5
Si	0 - 2.5	7440-21-3
Cu	0 - 2	7440-50-8
Ni	0 - 2	7440-02-0
Cr	0 - 1.5	7440-47-3
Mo	0 - 1	7439-98-7
C	0 - 0.7	7440-44-0
V	0 - 0.5	7440-62-2
Nb	0 - 0.3	7440-03-1
Ti	0 - 0.3	7440-32-6
Bi	0 - 0.2	7440-69-9
Al	0 - 0.1	7429-90-5
B	0 - 0.1	7440-42-8

L60 ANSWER 8 OF 9 HCAPLUS COPYRIGHT ACS on STN

AN 2000:120684 HCAPLUS
DN 132:183774
TI Metal powder used as an auxiliary material in welding of steels
IN Okabe, Tatsuji; Shiota, Morikazu
PA Takeuchi Kogyo K. K., Japan
SO Jpn. Kokai Tokkyo Koho, 73 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2000052086	A2	20000222	JP 1998-236565	19980807
PRAI JP 1998-236565		19980807		

AB A metal powder used as an auxiliary material in welding of steels has a composition determined based on the relation between the steel composition and a welding wire composition by taking the weld composition into account. Thus, when a welding wire is used which is designed for a 490 N/mm2 steel, the welding powder may contain. C ≤0.10, Si ≤0.50, Mn 0.60-0.99, P ≤0.02, S ≤0.02, Cu ≤7.7, Ni 3.9-40.3, Cr 0.8-20.0, Mo 0.8-14.0, V ≤1.7, B ≤0.1, Ti ≤0.5, Al ≤0.1%, and Fe as the balance. Feeder for the metal powder, method for feeding the powder, and a welding method using the powder are also claimed.

IT **259268-17-2 259268-18-3 259268-19-4**
259268-20-7 259268-21-8
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(metal powder used as an auxiliary material in welding of steels)

RN 259268-17-2 HCAPLUS
CN Iron alloy, base, Fe 44-99,Ni 0-27,Cu 0-9.1,Mo 0-9.1,Cr 0-6.7,Ti 0-1.4,V 0-1.4,Mn 0.6-1,Si 0-0.5,Al 0-0.1,B 0-0.1,C 0-0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	44 - 99	7439-89-6
Ni	0 - 27	7440-02-0
Cu	0 - 9.1	7440-50-8
Mo	0 - 9.1	7439-98-7
Cr	0 - 6.7	7440-47-3
Ti	0 - 1.4	7440-32-6
V	0 - 1.4	7440-62-2
Mn	0.6 - 1	7439-96-5
Si	0 - 0.5	7440-21-3
Al	0 - 0.1	7429-90-5
B	0 - 0.1	7440-42-8
C	0 - 0.1	7440-44-0

RN 259268-18-3 HCAPLUS
CN Iron alloy, base, Fe 36-99,Ni 0-27,Mo 0.6-17,Cu 0-9.1,Cr 0-6.7,Ti 0-1.4,V 0-1.4,Mn 0.6-1,Si 0-0.5,Al 0-0.1,B 0-0.1,C 0-0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	36 - 99	7439-89-6
Ni	0 - 27	7440-02-0
Mo	0.6 - 17	7439-98-7
Cu	0 - 9.1	7440-50-8
Cr	0 - 6.7	7440-47-3
Ti	0 - 1.4	7440-32-6
V	0 - 1.4	7440-62-2
Mn	0.6 - 1	7439-96-5
Si	0 - 0.5	7440-21-3
Al	0 - 0.1	7429-90-5
B	0 - 0.1	7440-42-8
C	0 - 0.1	7440-44-0

RN 259268-19-4 HCAPLUS
CN Iron alloy, base, Fe 49-99,Ni 0-23,Cr 0-12,Mo 0-6.3,Cu 0-5.8,V 0-1.2,Mn 0.6-1,Si 0-0.5,Ti 0-0.5,Al 0-0.1,B 0-0.1,C 0-0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	49 - 99	7439-89-6
Ni	0 - 23	7440-02-0
Cr	0 - 12	7440-47-3
Mo	0 - 6.3	7439-98-7
Cu	0 - 5.8	7440-50-8
V	0 - 1.2	7440-62-2
Mn	0.6 - 1	7439-96-5
Si	0 - 0.5	7440-21-3
Ti	0 - 0.5	7440-32-6
Al	0 - 0.1	7429-90-5
B	0 - 0.1	7440-42-8
C	0 - 0.1	7440-44-0

RN 259268-20-7 HCAPLUS
CN Iron alloy, base, Fe 35-98,Ni 0.6-34,Cr 0-12,Mo 0.5-9.8,Cu 0-5.8,V 0-1.2,Mn 0.6-1,Si 0-0.5,Ti 0-0.5,Al 0-0.1,B 0-0.1,C 0-0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	35 - 98	7439-89-6
Ni	0.6 - 34	7440-02-0
Cr	0 - 12	7440-47-3
Mo	0.5 - 9.8	7439-98-7
Cu	0 - 5.8	7440-50-8
V	0 - 1.2	7440-62-2
Mn	0.6 - 1	7439-96-5
Si	0 - 0.5	7440-21-3
Ti	0 - 0.5	7440-32-6
Al	0 - 0.1	7429-90-5
B	0 - 0.1	7440-42-8
C	0 - 0.1	7440-44-0

RN 259268-21-8 HCAPLUS
CN Iron alloy, base, Fe 34-99,Ni 0-26,Cr 0-17,Mo 0-11,Cu 0-7.7,V 0-1.7,Mn 0.6-1,Si 0-0.5,Ti 0-0.5,Al 0-0.1,B 0-0.1,C 0-0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	34 - 99	7439-89-6
Ni	0 - 26	7440-02-0
Cr	0 - 17	7440-47-3
Mo	0 - 11	7439-98-7
Cu	0 - 7.7	7440-50-8
V	0 - 1.7	7440-62-2
Mn	0.6 - 1	7439-96-5
Si	0 - 0.5	7440-21-3
Ti	0 - 0.5	7440-32-6
Al	0 - 0.1	7429-90-5
B	0 - 0.1	7440-42-8
C	0 - 0.1	7440-44-0

10/9/1 (Item 1 from file: 23)
DIALOG(R) File 23:CSA Technology Research Database

0004935617 IP ACCESSION NO: 175170; 199806-31-3079; 982087
Delayed fracture test of high strength **bolts** in electrochemical cell

SHIMOMURA, H; SHINODA, T
GIFU NATIONAL COLLEGE OF TECHNOLOGY

PAGES: 915-924
PUBLICATION DATE: 1995

PUBLISHER: Warley, West Midlands B64 6PH, UK; Engineering Materials Advisory Services Ltd

CONFERENCE:
Materials Ageing and Component Life Extension, Proceedings, International Symposium, Milan, Italy, Vol.2, Milan, Italy, 10-13 Oct. 1995

DOCUMENT TYPE: Conference Paper
LANGUAGE: English
ISBN: 0947817832andISBN0947817859
NOTES: Copy of original document available from TWI; 8 fig.; 2 tab.; Graphs ; Maps; 10 ref., Graphs, Maps; 10 refs. Graphs; Maps
NO. OF REFS.: 10
FILE SEGMENT: Weldasearch; Metadex; Corrosion Abstracts
ABSTRACT:
Crack initiation and growth in two types of high-strength bolts were studied by optical microscopy. Delayed fracture tests were carried out in an electrochemical cell. The influence of chemical composition of the bolt material, and of notch depth were determined. The bolts (22 mm diameter) were made of F10T **Cr**-Mo low-alloy steel (0.36%C, 0.26%**Si**, 0.76% **Mn**, 1.02%**Cr**, 0.17%Mo) and F10T **Boron** low-alloy steel (0.34%C, 0.22%**Si**, 1.27%**Mn**, 0.03%**Cr**, 0.0017%**B**).
Yield strength, tensile strength and Vickers hardness were measured. The unsteady state diffusion of hydrogen under stress was also modelled by finite element analysis, with good agreement between analytical and experimental results.
DESCRIPTORS: Crack initiation; Crack propagation; Symposia; Low alloy steels; Creep resisting materials; Carbon **manganese steels**; **Steels**; **Bolts**; Fracture **toughness**; Mechanical properties; **Toughness**; Ultimate tensile strength; Strength; Yield strength; Hardness; Diffusion; Hydrogen; Gases; Finite element analysis; Computation; Stress; Hydrogen embrittlement; Embrittlement; Conference paper; **Chromium** molybdenum steels; Mechanical properties; Low alloy steels; **Bolts**; Hydrogen embrittlement; Crack initiation; Crack propagation; Diffusion
IDENTIFIERS: MECHANICAL **FASTENING**,
SUBJ CATG: MECHANICAL FASTENING; 31, Mechanical Properties
MATERIAL CLASS: SACM, Chromium molybdenum steels; SAL, Low alloy steels
MATERIALS: Fe-0.36C-1.02Cr-0.76Mn-0.17Mo; Fe-0.34C-1.27Mn-0.17B

10/9/2 (Item 2 from file: 23)
DIALOG(R) File 23:CSA Technology Research Database

0004109887 IP ACCESSION NO: 199209-45-1011
High **Toughness** Stainless **Steels** and the Method of Producing the Same

Ohma, H
Daido Tokushuko
PUBLICATION DATE: 1991

, European Patent

DOCUMENT TYPE: Patent
RECORD TYPE: Abstract
LANGUAGE: English
FILE SEGMENT: Metadex

ABSTRACT:
A high **toughness** ferritic stainless **steel** consists essentially in weight% of not > 0.03 carbon, not > 0.040 phosphorus, not > 0.0.010 sulphur, not > 1.0 **Si**, not > 1.0 **Mn**, 11.5-22.0 **Cr**, 0.05-0.80 Nb, not > 0.025 nitrogen, the balance being Fe and inevitable impurities. The number of inclusions > 20 mu m among inclusions composed of carbonitrides of Nb and **Ti** and Zr contained as inevitable impurities is not > 20/300 mm exp 2 . The steel is a suitable material for screws.

DESCRIPTORS: Patent; Ferritic stainless **steels**; **Alloy** development; **Screws**; **Toughness**; **Alloying effects**; Nonmetallic inclusions; Chemical composition
SUBJ CATG: 45, Ferrous Alloy Production

10/9/7 (Item 1 from file: 36)
DIALOG(R) File 36:MetalBase

0003540722 IP Accession Number: 175170
Delayed fracture test of high strength **bolts** in electrochemical cell.
Author: SHIMOMURA H; SHINODA T
GIFU NATIONAL COLLEGE OF TECHNOLOGY; NAGOYA UNIVERSITY

1995
In: Materials Ageing and Component Life Extension. Proceedings, International Symposium, Milan, Italy, 10-13 Oct.1995. Ed: V.Bicego, A.Nitta, R.Viswanathan. Publ: Warley, West Midlands B64 6PH, UK; Engineering Materials Advisory Services Ltd; 1995. ISBN 0-947817-83-2 and ISBN 0-947817-85-9. Vol.2. pp.915-924. 8 fig., 2 tab., 10 reference, 1995

Avail.: Yes
ISBN: 0-947817-83-2|0-947817-85-9
Country of Publication: JAPAN

Document Type: Conference
File Segment: WELDASEARCH
Language: English

Abstract: Crack initiation and growth in two types of high-strength bolts were studied by optical microscopy. Delayed fracture tests were carried out in an electrochemical cell. The influence of chemical composition of the bolt material, and of notch depth were determined. The bolts (22 mm diameter) were made of F10T **Cr**-Mo low-alloy steel (0.36%C, 0.26% **Si**, 0.76%**Mn**, 1.02%**Cr**, 0.17%Mo) and F10T **Boron** low-alloy steel (0.34%C, 0.22%**Si**, 1.27%**Mn**, 0.03%**Cr**, 0.0017%**B**). Yield strength, tensile strength and Vickers hardness were measured. The unsteady state diffusion of hydrogen under stress was also modelled by finite element analysis, with good agreement between analytical and experimental results.

Descriptors: CRACK INITIATION; CRACK PROPAGATION; SYMPOSIA; LOW ALLOY STEELS; CREEP RESISTING MATERIALS; CARBON **MANGANESE STEELS**; **STEELS**; **BOLTS**; FRACTURE **TOUGHNESS**; MECHANICAL PROPERTIES; **TOUGHNESS**; ULTIMATE TENSILE STRENGTH; STRENGTH; YIELD STRENGTH; HARDNESS; DIFFUSION; HYDROGEN; GASES; FINITE ELEMENT ANALYSIS; COMPUTATION; STRESS; HYDROGEN EMBRITTLEMENT; EMBRITTLEMENT
Identifiers: MECHANICAL **FASTENING**

10/9/9 (Item 1 from file: 46)
DIALOG(R) File 46:Corrosion Abstracts

0000071771 IP ACCESSION NO: 982087
Delayed fracture test of high strength **bolts** in electrochemical cell

SHIMOMURA, H; SHINODA, T
GIFU NATIONAL COLLEGE OF TECHNOLOGY

PAGES: 915-924
PUBLICATION DATE: 1995

PUBLISHER: Warley, West Midlands B64 6PH, UK; Engineering Materials Advisory Services Ltd

CONFERENCE:
Materials Ageing and Component Life Extension, Proceedings, International Symposium, Milan, Italy, Vol.2, Milan, Italy, 10-13 Oct. 1995

DOCUMENT TYPE: Conference Paper
RECORD TYPE: Abstract
LANGUAGE: English
ISBN: 0947817832andISBN0947817859
NOTES: Copy of original document available from TWI; 8 fig.; 2 tab.; Graphs ; Maps; 10 ref., Graphs, Maps; 10 refs. Graphs; Maps
NO. OF REFS.: 10
FILE SEGMENT: Corrosion Abstracts
ABSTRACT:
Crack initiation and growth in two types of high-strength bolts were studied by optical microscopy. Delayed fracture tests were carried out in an electrochemical cell. The influence of chemical composition of the bolt material, and of notch depth were determined. The bolts (22 mm diameter) were made of F10T **Cr**-Mo low-alloy steel (0.36%C, 0.26%**Si**, 0.76% **Mn**, 1.02%**Cr**, 0.17%Mo) and F10T **Boron** low-alloy steel (0.34%C, 0.22%**Si**, 1.27%**Mn**, 0.03%**Cr**, 0.0017%**B**). Yield strength, tensile strength and Vickers hardness were measured. The unsteady state diffusion of hydrogen under stress was also modelled by finite element analysis, with good agreement between analytical and experimental results.
DESCRIPTORS: Crack initiation; Crack propagation; Symposia; Low alloy steels; Creep resisting materials; Carbon **manganese steels**; **Steels**; **Bolts**; Fracture **toughness**; Mechanical properties; **Toughness**; Ultimate tensile strength; Strength; Yield strength; Hardness; Diffusion; Hydrogen; Gases; Finite element analysis; Computation; Stress; Hydrogen embrittlement; Embrittlement; Conference paper; **Chromium** molybdenum steels; Mechanical properties; Low alloy steels; **Bolts**; Hydrogen embrittlement; Crack initiation; Crack propagation; Diffusion
IDENTIFIERS: MECHANICAL **FASTENING**
MATERIAL CLASS: SACM, Chromium molybdenum steels; SAL, Low alloy steels
MATERIALS: Fe-0.36C-1.02Cr-0.76Mn-0.17Mo; Fe-0.34C-1.27Mn-0.17B

19/9/1 (Item 1 from file: 23)
DIALOG(R) File 23:CSA Technology Research Database

0005745878 IP ACCESSION NO: 196754
Analysis of the cracking causes of the jarring tables from the heat treatment furnace type TT-OA for **screws** (Analiza cauzelor care au determinat ...)

TOMA, M; BUSILA, C
ISIM TIMISOARA. ROMANIA

Buletinul Institutului National de Cercetari-Dezvoltare in Sudura si Incercari de Materiale-ISIM Timisoara, v 8, n 4, p 4-10, 1999
PUBLICATION DATE: 1999

DOCUMENT TYPE: Journal Article
RECORD TYPE: Abstract
LANGUAGE: English
NOTES: Copy of original document available from TWI; 7 fig.; 3 tab.
NO. OF REFS.: 13
FILE SEGMENT: Weldasearch

ABSTRACT:
The causes of deformation and cracking of 15SNC250 stainless steel plates (max.0.2%C, 1.5-2.5%**Si**, max.2.0%**Mn**, 25%**Cr**, 20%Ni) used to provide transport of screws in a heat treatment furnace type TT-OA were investigated. Damage due to geometrical factors (notch effects), loading factors (thermal and residual stresses), parent and filler material characteristics are discussed. Test samples from the jarring table were taken. The chemical composition, microstructure, **toughness** and embrittlement of the samples were determined. Chemical analysis revealed that (25%**Cr**,20%Ni), (25%**Cr**,13%Ni), (18%**Cr**,9%Ni) and (17% **Cr**) type parent metal steels were present due to frequent repair. Welding and repair welding of the tables were done with ECr25Ni20B coated electrodes of 5 mm diameter. The effects of the electrode and parent metal characteristics on the deformation and cracking of the jarring table are discussed.

DESCRIPTORS: Reference lists; Case histories; Materials handling; Furnaces; Cracking; Influencing factors; Austenitic stainless steels; Repair; Deformation; Defects; Steels; Maintenance; Stainless steels,
SUBJ CATG: WELDED STRUCTURES

19/9/2 (Item 2 from file: 23)
DIALOG(R) File 23:CSA Technology Research Database

0002746086 IP ACCESSION NO: 860231-0697
Chromium--Molybdenum--Vanadium Steel With High Strength and Tenacity

Brandis, H; Huchtemann, B
Thyssen Edelstahlwerke
PUBLICATION DATE: 1985

, EUR

RECORD TYPE: Abstract
LANGUAGE: German
FILE SEGMENT: Metadex

ABSTRACT:
The invention concerns a steel of the composition 0.17-0.25% C, 0.15-0.35% **Si**, 0.35-0.85% **Mn**, 0.030% maximum P, 0.035% maximum S, 1.15-1.5% **Cr**, 0.65-0.85% Mo, 0.90-1.10% V, remainder Fe and unavoidable impurities of the Fe. the steel is particularly suitable as a material for articles with high creep strength and high relaxation strength with simultaneous high **toughness**, for components stressed at tempratures up to about 560 deg C, particularly for bolts and nuts.--D.E.J.

DESCRIPTORS: High strength low alloy steels; Mechanical properties; **Toughness**; **Bolts**; Materials selection; **Nuts** (**fasteners**)
SUBJ CATG: 31, Mechanical Properties
MATERIAL CLASS: SAHS, SACMV, High strength steels, Chromium molybdenum vanadium steels
MATERIALS: Fe-0.2C-0.3Si-0.7Mn-1.5Cr-0.8Mo-1.1V

19/9/3 (Item 3 from file: 23)
DIALOG(R) File 23:CSA Technology Research Database

0001942792 IP ACCESSION NO: 810931-3141
Study of Embrittlement and Relaxation of Steel 28 CDV 5.08 for High-Temperature Steam Turbine **Bolts**: Influence of Structure and Stress

Donati, J R; Guttmann, D; Menard, A

Mem. Sci. Rev. Metall., v 77, n 10, p 913-924, Oct. 1980
PUBLICATION DATE: 1980

DOCUMENT TYPE: Journal Article
RECORD TYPE: Abstract
LANGUAGE: French
FILE SEGMENT: Metadex

ABSTRACT:
Results of tests are reported on three 100 mm dia. bars of slightly different compositions within the specification 0.25-0.31C, 0.9 maximum **Mn**, 0.6 maximum **Si**, 1.00-1.50 **Cr**, 0.50-0.90 Mo, and 0.20-0.40 V, produced by either rolling or forging, followed by different treatments to produce varying amounts of bainite /tempered martensite, with strengths ranging from 741-839 MPa yield strength, 817-933 MPa UTS, and **toughnesses** from 18-2.6 daJ /cm2 KCV at 0 deg C. In the temperature range of the tests, 450-550 deg C, a reversible temper embrittlement was observed, due mainly to segregation of phosphorus in the prior austenite grain boundaries, leading to lowering of the transition temperature. There was also a non-reversible embrittlement introduced by flow resulting from heavy deformation during manufacture. It appeared that martensite was no more responsible for temper embrittlement than bainite, and, in fact, tempered martensite could be preferred to tempered bainite in this respect. 7 reference--C.V.

DESCRIPTORS: Low alloy steels; Mechanical properties; Embrittlement; Stress relaxation; Tempering; High temperature tests; Grain boundaries; Tensile properties; Heating effects; Steam turbines; Austenitizing; **Bolts**
SUBJ CATG: 31, Mechanical Properties
MATERIAL CLASS: SAL, Low alloys steels
MATERIALS: 28CVD5.08

19/9/7 (Item 1 from file: 144)
DIALOG(R) File 144:Pascal

05886045 PASCAL Number: 84-0387785
Effect of sulphur content on delayed fracture susceptibility of high strength steel for **bolts**
NAMIKI K; ISOKAWA K
Daido Steel Co. Central Research Laboratory, Nagoya, Japan
Journal: Trans. Iron Steel Inst. Japan, 1984-07, 24 (7) 566-572
ISSN: 0021-1583
Number of Refs.: 21 reference
Document Type: P (Serial) ; A (Analytic)
Country of Publication: Japan
Language: English

English Descriptors: High strength steel; Delayed fracture; Sulfur; Stud; Tempering; Fracture appearance; Transgranular fracture; Intergranular fracture; Grain size; Non metallic inclusion; Tensile strength; Proof stress; Temperature; Notch **toughness**; Charpy impact test; Bend test ; Bend loading; Time; Heat treatable steel

French Descriptors: Acier haute resistance; Rupture differee; Soufre-ACT; Goujon; Revenu; Facies cassure; Rupture transgranulaire; Rupture intergranulaire; Grosseur grain; Inclusion non metallique; Resistance traction; Limite conventionnelle elasticite; Temperature; Resilience; Essai Charpy V; Essai pliage; Charge flexion; Temps; Acier traitement thermique; AcierA B:0 **Cr**:0,5-1 C:0,23-0,9 **Mn**:0,5-1 S:0 **Si**:0,1-0,5; AcierA B:0 **Cr**:1-1,5 C:0,23-0,9 **Mn**:0,5-1 S:0,01-0,05 **Si**:0,1-0,5; AcierA B:0 **Cr**:1-1,5 C:0,23-0,9 **Mn**:0,5-1 S:0,01-0,05 **Si**:0,1-0,5; Belastungsdauer

Classification Codes: 240A04B05; 241A01F; 240A04B07

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L1            62 SEA ABB=ON  PLU=ON  C/MF
L2            82 SEA ABB=ON  PLU=ON  SI/MF
L3            89 SEA ABB=ON  PLU=ON  MN/MF
L4            49 SEA ABB=ON  PLU=ON  P/MF
L5            92 SEA ABB=ON  PLU=ON  S/MF
L6           109 SEA ABB=ON  PLU=ON  CR/MF
L7           138 SEA ABB=ON  PLU=ON  MO/MF
L8           133 SEA ABB=ON  PLU=ON  CU/MF
L9            40 SEA ABB=ON  PLU=ON  B/MF
L10          147 SEA ABB=ON  PLU=ON  NI/MF
L11           52 SEA ABB=ON  PLU=ON  AL/MF
L12          122 SEA ABB=ON  PLU=ON  TI/MF
L13           40 SEA ABB=ON  PLU=ON  N/MF

     FILE 'STNGUIDE' ENTERED AT 10:59:49 ON 22 AUG 2006

     FILE 'REGISTRY' ENTERED AT 11:04:15 ON 22 AUG 2006
L14       173339 SEA ABB=ON  PLU=ON  C/ELS,MAC AND SI/ELS,MAC AND MN/ELS,MAC
L15        20895 SEA ABB=ON  PLU=ON  CR/ELS,MAC AND B/ELS,MAC
L16        69773 SEA ABB=ON  PLU=ON  AL/ELS,MAC AND TI/ELS,MAC
L17          317 SEA ABB=ON  PLU=ON  L14 AND L15 AND L16
L18           55 SEA ABB=ON  PLU=ON  L17 AND P/ELS,MAC
L19           50 SEA ABB=ON  PLU=ON  L17 AND S/ELS,MAC
L20          222 SEA ABB=ON  PLU=ON  L17 AND MO/ELS,MAC
L21          102 SEA ABB=ON  PLU=ON  L17 AND CU/ELS,MAC
L22          236 SEA ABB=ON  PLU=ON  L17 AND NI/ELS,MAC
L23           53 SEA ABB=ON  PLU=ON  L17 AND N/ELS,MAC
L24           30 SEA ABB=ON  PLU=ON  L18 AND L19 AND L20
L25           16 SEA ABB=ON  PLU=ON  L18 AND L19 AND L20 AND L21
L26           16 SEA ABB=ON  PLU=ON  L18 AND L19 AND L20 AND L21 AND L22
L27            3 SEA ABB=ON  PLU=ON  L18 AND L19 AND L20 AND L21 AND L22 AND
                 L23
                 D FIDE 1-3

     FILE 'STNGUIDE' ENTERED AT 11:06:22 ON 22 AUG 2006

     FILE 'HCAPLUS' ENTERED AT 11:08:15 ON 22 AUG 2006
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                 E US20050249572/PN
L28            1 SEA ABB=ON  PLU=ON  VALMEX OR VALMEX?/PA,CS
L29         2190 SEA ABB=ON  PLU=ON  LEROUX?/AU,IN
L30            2 SEA ABB=ON  PLU=ON  VIRGL?/AU,IN
L31            1 SEA ABB=ON  PLU=ON  L28 AND L29
L32            1 SEA ABB=ON  PLU=ON  L28 AND L30
L33            1 SEA ABB=ON  PLU=ON  L29 AND L30
L34            1 SEA ABB=ON  PLU=ON  (L31 OR L32 OR L33)
L35              SEL PLU=ON  L34 1- RN :       1 TERM
L36            1 SEA ABB=ON  PLU=ON  L35
L37            1 SEA ABB=ON  PLU=ON  L34 AND L36
                 D ALL HITSTR

     FILE 'STNGUIDE' ENTERED AT 11:10:21 ON 22 AUG 2006
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     CAS/STN FILE 'REGISTRY' ENTERED AT 11:11:05 ON 22 AUG 2006
L38            1 SEA ABB=ON  PLU=ON  642093-26-3
                 D FIDE
L39        62910 SEA ABB=ON  PLU=ON  FE>96/MAC AND L14
L40          278 SEA ABB=ON  PLU=ON  FE>96/MAC AND L15
L41         3114 SEA ABB=ON  PLU=ON  FE>96/MAC AND L16
L42        41388 SEA ABB=ON  PLU=ON  FE>97/MAC AND L14
L43          203 SEA ABB=ON  PLU=ON  FE>97/MAC AND L15
L44         2657 SEA ABB=ON  PLU=ON  FE>97/MAC AND L16
L45          137 SEA ABB=ON  PLU=ON  L42 AND L43
L46         1569 SEA ABB=ON  PLU=ON  L42 AND L44
L47           33 SEA ABB=ON  PLU=ON  L43 AND L44
L48           28 SEA ABB=ON  PLU=ON  L45 AND L46 AND L47
                 D FIDE 1-28

     FILE 'HCAPLUS' ENTERED AT 11:15:05 ON 22 AUG 2006
L49            1 SEA ABB=ON  PLU=ON  L48 AND (HARD##### OR VICKER###)

     FILE 'HCAPLUS' ENTERED AT 11:15:19 ON 22 AUG 2006
L50            2 SEA ABB=ON  PLU=ON  L48 AND HOLLOW#####

     FILE 'HCAPLUS' ENTERED AT 11:15:25 ON 22 AUG 2006
L51            0 SEA ABB=ON  PLU=ON  L48 AND FASTEN######
L52            1 SEA ABB=ON  PLU=ON  L48 AND (SCREW###### OR NIT OR BOLT#####)
L53            4 SEA ABB=ON  PLU=ON  L48 AND (STRIP##### OR SPALL#####)
L54            0 SEA ABB=ON  PLU=ON  L48 AND DURAB########
L55           12 SEA ABB=ON  PLU=ON  L48 AND (STRONG###### OR STRENGTH###### OR
                 INTEGRITY)
L56            2 SEA ABB=ON  PLU=ON  L48 AND (HOLLOW###### OR SOCKET###### OR
                 PHILLIPS OR SLOT###### OR SCREWHEAD? OR NAIL####### OR
                 HEAD#####)
L57            0 SEA ABB=ON  PLU=ON  L48 AND SLIP#######
L58           23 SEA ABB=ON  PLU=ON  L48
L59           14 SEA ABB=ON  PLU=ON  (L49 OR L50 OR L51 OR L52 OR L53 OR L54 OR
                 L55 OR L56 OR L57)
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L60            9 SEA ABB=ON  PLU=ON  L58 NOT L59
                 D BIB AB HITSTR 1-9
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22aug06 09:47:16 User259284 Session D3744.2

DIALOG File 2: INSPEC 1898-2006/Aug W2
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Set	Items	Description
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S3	7194	CI=MN EL
S4	7907	CI=P EL
S5	6687	CI=S EL
S6	14674	CI=CR EL
S7	8159	CI=MO EL
S8	46910	CI=CU EL
S9	13490	CI=B EL
S10	27202	CI=NI EL
S11	41433	CI=AL EL
S12	21397	CI=TI EL
S13	27750	CI=N EL
S14	4807	CI=C DOP
S15	7122	CI=SI DOP
S16	4344	CI=MN DOP
S17	5891	CI=P DOP
S18	1809	CI=S DOP
S19	6376	CI=CR DOP
S20	500	CI=MO DOP
S21	4087	CI=CU DOP
S22	10484	CI=B DOP
S23	2064	CI=NI DOP
S24	4034	CI=AL DOP
S25	7097	CI=TI DOP
S26	6050	CI=N DOP
S27	81071	S1 OR S14
S28	181219	S2 OR S15
S29	7471	S3 OR S16
S30	8112	S4 OR S17
S31	7206	S5 OR S18
S32	14856	S6 OR S19
S33	8217	S7 OR S20
S34	47238	S8 OR S21
S35	14130	S9 OR S22
S36	27310	S10 OR S23
S37	42223	S11 OR S24
S38	21776	S12 OR S25
S39	28132	S13 OR S26
S40	130	27AND28AND29
S41	77	30AND31AND32
S42	24	33AND34AND35
S43	50	36AND37AND38AND39
S44	27	40AND41
S45	6	40AND42
S46	24	40AND43
S47	3	41AND42
S48	14	41AND43
S49	6	42AND43
S50	3	44AND45AND46AND47AND48AND49
S51	3	44AND45
S52	13	44AND46
S53	3	44AND47
S54	13	44AND48
S55	3	44AND49
S56	4	45AND46
S57	18	S45 OR S47 OR S49 OR S50:S56
S58	1	S57 AND ALLOY?????
S59	2	S57 AND (DOP???? OR ADD??? OR ADDITIV? OR IMPLANT?)
S60	0	S57 AND CI=DOP
S61	1	58AND59
S62	1	S61 NOT S50

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      22aug06 10:51:51 User259284 Session D3745.2

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  File 335:Ceramic Abstracts/World Ceramics Abstracts 1966-2006/Aug
        (c) 2006 CSA.
  File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
        (c) 2006 The Thomson Corp

Set      Items   Description
S1      187403   (SCREW???? OR BOLT?? OR NUT OR NUTS OR FASTEN?????? OR LUG-
             NUT???)/TI,ID,DE
S2      187406   S1 OR LUGNUT?
S3         442   S2 AND TOUGH????????(5N)(STEEL?? OR ALLOY?????)
S4          54   S3 AND (MN OR MANGANESE OR CI=MN)
S5          19   S4 AND (SI OR SILICON OR CI=SI)
S6          13   S5 AND (CR OR CHROME OR CHROMIUM OR CI=CR)
S7           5   S6 AND (AL OR ALUMINUM OR ALUMINIUM OR CI=AL)
S8           3   S6 AND (CI=B OR BORON OR B)
S9           1   S6 AND (CI=TI OR TITANIUM OR TI)
S10          9   S7:S9
S11       1710   S2 AND TOUGHNESS??
S12        109   S11 AND (MN OR MANGANESE OR CI=MN)
S13         35   S12 AND (SI OR SILICON OR CI=SI)
S14         20   S13 AND (CR OR CHROME OR CHROMIUM OR CI=CR)
S15          0   S14 AND (96 OR 97 OR 98 OR 99)(3N)(FE OR IRON)
S16          0   S11 AND (96 OR 97 OR 98 OR 99)(3N)(FE OR IRON)
S17        198   S11 AND (FE OR IRON)
S18         10   RD S14  (unique items)
S19          7   S18 NOT S10
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